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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

LINNENKAMP, NICHOLAS L

ART UNIT PAPER NUMBER

2635

DATE MAILED: 01/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/945,051

Applicant(s)

HO ET AL.

Examiner

Nicholas L Linnenkamp

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 October 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 8/31/2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5,6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Specification

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract of the disclosure is objected to because the abstract is not concise. The abstract does not meet the length requirements of 50 to 150 words. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 1, 3, 4, 10, and 11 is rejected under 35 U.S.C. 102(e) as being anticipated by Arisawa.

In reference to claim 1, Arisawa teaches of a mobile station transmitting data from an external base station, the mobile station **(2)** comprising:

- A mobile station communication controller **(6)** for processing data including control data to output a predetermined data frame;
- A mobile station source coder **(5)** for receiving the data frame and performing source coding on it according to a predetermined coding method to output coded data;
- A first modulator **(25)** for receiving a first carrier having a predetermined frequency **(S_{s2})** and modulating the coded signal from the mobile source coder using the first carrier to generate a first modulated signal **(S₂)**;
- A second modulator **(21)** for receiving a second carrier having a predetermined frequency **(Clock signal received from carrier extractor 20)** and performing modulation on the first modulated signal using the second carrier to generate a modulated uplink signal;
- A mobile station interfacer **(4)** for transmitting the modulated uplink signal to the base station and receiving a modulated downlink signal from the base station;

- A first demodulator **(22)** for receiving and demodulating the modulated downlink signal received from the base station via the mobile station interfacier and outputting demodulated data;
- A mobile station source decoder **(6 includes ability to encode/decode Col 4, lines 64-67)** for performing source decoding on the demodulated data from the first demodulator to convert the demodulated data to a base-band signal.

In reference to claim 3, claim 1 is taught as above. Arisawa teaches that the second carrier is provided from the base station **(Clock signal from carrier extractor 20)**.

In reference to claim 4, claim 1 is taught as above. Arisawa teaches that the first modulator performs differential phase shift keying (DPSK) modulation **(Col 4, lines 57-62)**, the second modulator performs amplitude shift keying (ASK) modulation **(Col 5, lines 13-17)**, and the first demodulator performs ASK demodulation **(Col 4, lines 41-46)**.

In reference to claim 10, Arisawa teaches of a data communication method of a mobile station transmitting data to and receiving data from an external base station with steps taught as claim 1 above.

In reference to claim 11, claim 10 is taught as above. Arisawa teaches claim 11 similar to claim 3 above.

Thus, Arisawa teaches all the limitations of claims 1, 3, 4, 10, and 11.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 5, 7, 9, 12, 14, and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arisawa in view of Haykin.

In reference to claim 5, Arisawa teaches of a base station transmitting data to and receiving data from an external mobile station, the base station comprising:

- A base station communication controller (10) for processing data including control data to output a predetermined data frame;
- A base station interfacier (8) for receiving a modulated uplink signal from the mobile station and transmitting a modulated downlink signal to the mobile station

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- A base station demodulator **(27)** for demodulating the output signal of the mixer to generate a base band signal according to a predetermined demodulation method;
- A base station source decoder **(10 includes ability to encode/decode data stream, Col 4, lines 64-67)** for receiving the base band signal from the base station demodulator and performing source decoding according to a predetermined method;
- A base station source coder **(10 includes ability to encode/decode data stream, Col 4, lines 64-67)** for performing source coding the data frame output from the base station communication controller;
- A base station modulator **(17, 18)** for modulating the output data of the base station source coder according to a predetermined method and outputting modulated data to the base station interfacier.

Arisawa does not teach of:

- A mixer for mixing the modulated uplink signal with a predetermined intermediated frequency and filtering the mixed signal to convert the modulated uplink signal to a signal having the predetermined intermediate frequency
- An oscillator for generating the predetermined intermediate frequency.

Haykin teaches that it is well known in the art to employ the use of a mixer and oscillator for moving a signal from one frequency to another in order reduce the cost of transmitter/receiver equipment by performing signal processing on signals of standard frequency. After signal processing then signal is mixed upon a higher frequency signal for transmission over a medium.

It would have been obvious to one skilled in the art at the time of invention to use a mixer to mix the modulated uplink signal with a predetermined intermediate frequency to bring the frequency of the modulated signal to that of the intermediate frequency if the higher transmission frequency caused the signal processing equipment to become prohibitively expensive because such modulation techniques are well known and apply to all RF systems.

In reference to claim 7, claim 5 is taught as above. Arisawa teaches that the base station demodulator performs differential phase shift keying demodulation (**Col 5, lines 22-30**), and the base station modulator performs amplitude shift keying modulation (**Col 4, lines 13-18**).

In reference to claim 9, claim 5 is taught as above. Arisawa teaches that the base station demodulator performs demodulation of the DPSK/ASK modulated signal similar to claim 7 above. Arisawa does not teach of the components that comprise the demodulation. Where Arisawa is not specific about the demodulation being done it is because of the differing types of modulation schemes that he has provided. It is understood that if Arisawa were to choose a DPSK/ASK modulation scheme then an

appropriate ASK/DPSK demodulation would have to take place in order to recover the original signal.

It would have been obvious to one skilled in the art at the time of invention to include amplitude limiting amplifiers, amplitude comparators, phase shifters and a quadrature detection receiver for demodulating the original signal when the original signal is DPSK/ASK modulated because Arisawa suggests the use of DPSK/ASK modulation and thus ASK/DPSK demodulation and one skilled in the art at the time of invention would have used the components listed to perform the required demodulation.

In reference to claim 12, Arisawa teaches of a data communication method of a base station transmitting data to and receiving data from an external mobile station, the steps taught as in claim 5.

In reference to claim 14, Arisawa does not teach of an electronic toll collecting system. Toll collecting systems are well known in the art to employ non-contact IC cards that perform data communications. Claim 14 is taught similar to claims 1 and 5.

It would have been obvious to one skilled in the art at the time of invention to use Arisawa's communication system to effect a toll collecting system since toll collecting systems are known to use contactless RF communication devices in order to facilitate driver convenience.

In reference to claim 16, claim 14 is taught as above. Claim 16 is taught similar to claim 3 above.

In reference to claim 17, claim 14 is taught as above. Claim 17 is taught similar to claim 4 above.

In reference to claim 18, claim 14 is taught as above. Claim 18 is taught similar to claim 9 above.

Thus, Arisawa teaches all the limitations of claims 5, 7, 9, 12, 14, and 16-18.

Claims 2, 8, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arisawa in view of Grindahl et al. (heretofore Grindahl).

In reference to claim 2, claim 1 is taught as above. Arisawa does not teach that the mobile station source coder performs coding according to a Manchester coding method, and the mobile station source decoder performs decoding according to a Manchester decoding method. Arisawa does teach of using non-return-to-zero (NRZ) bit encoding (**Col 4, lines 64-67**). Grindahl suggests that Manchester encoders are well known and produce a code in which a data clock is embedded into the data stream.

In reference to claim 8, claim 5 is taught as above. Claim 8 is taught similar to claim 2 above.

In reference to claim 15, claim 14 is taught as above. Claim 15 is taught similar to claim 2 above.

It would have been obvious to one skilled in the art at the time of invention to exchange the NRZ encoding scheme of Arisawa with the Manchester coding of Grindahl because Grindahl suggest that they are exchangeable (**Col 9, lines 57-59**). In addition, it is well known that NRZ encoding schemes also embed a data clock in the data stream and provide similar functionality to Manchester encoding.

Thus, Arisawa and Grindahl teach all the limitations of claims 2, 8, and 15.

Claims 6 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arisawa in view of MacLellan et al. (heretofore MacLellan).

In reference to claim 6, claim 5 is taught as above. Arisawa does not teach of transmitting a modulated signal for a predetermined time and then transmitting a predetermined frequency until a response is received from the mobile station. MacLellan suggests that in RFID systems using Half Duplex techniques it is common to transmit an interrogation signal then transmit a continuous wave radio signal to the tag using modulated backscattering (MBS) (**Col 1, lines 25-35**).

In reference to claim 13, claim 12 is taught as above. Claim 13 is taught similar to claim 6 above.

It would have been obvious to one skilled in the art at the time of invention to transmit a signal according to the above claim because interrogation and continuous wave radio signals are common to MBS systems.

Thus, Arisawa and MacLellan teach all the limitations of claims 6 and 13.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nicholas L Linnenkamp whose telephone number is (703) 305-8701. The examiner can normally be reached on 8:00-5:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Horabik can be reached on (703) 305-4704. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4750.

Nicholas L Linnenkamp
Examiner
Art Unit 2635

NLL

MICHAEL HORABIK
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

A handwritten signature in black ink, appearing to read "Michael Horabik", written in a cursive style.